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## HIGH-SCHOOL ATTENDANCE.

"HOW FAR the Public High School is a Just Charge Upon the Public Treasury," was the title of an able paper read at the October, 1898, meeting of the New England Association<sup>1</sup> of Colleges and Preparatory Schools. That it is a just charge in Massachusetts has been settled by statute law and removes the question from the realm of legitimate discussion. It was shown that the expense of maintaining the public high schools in the state of Massachusetts was one-fifth of the entire school expense for the state; and it was claimed that the high schools were entitled to receive four-thirteenths of the school funds, since four of the thirteen years of the school course, from the kindergarten to high-school graduation, were included in the high-school course. It may be fairly argued that if high schools are to justify their existence as a part of the educational system of any state, it must be on some basis other than the length of the course of study. They should be willing to have the sterling business principle of "value received" applied rigorously, and for the schools that give due return, there will always be abundant and unquestioning financial support.

That high schools do not reach the masses as they should and as they can and must, will be generally admitted. To suppose that they are not alive to this condition, or that they are not making strenuous effort to widen the scope of their influence, would be at once to make a grave error and do them serious injustice.

The American high school was not designed, like its predecessor, the old academy, for a college preparatory school. Its chief and ultimate aim is the preparation of young men and women for American citizenship. The curricula of tax-supported schools must be elastic enough to respond to the pulse of reasonable popular demand. That this is being done is evidenced by the adoption of the elective, commercial, and manual-training

<sup>1</sup> See SCHOOL REVIEW, Vol. VI, p. 746.

courses; and by the establishment of commercial and manual-training high schools.

One frequently hears in educational gatherings or reads<sup>1</sup> in the daily press the statement, that a very small percentage of our public-school pupils ever gets into the high school. If the United States is taken as a base, four or five per cent. of the pupils registered in our public schools are all that are ever accredited as taking, in whole or in part, the high-school course. If different states are taken we get percentages varying from the lowest to 8 per cent., that of Massachusetts, the highest. If it is true that we are unable to attract to the high school more than three, five, or eight in each one hundred of the pupils in our public schools, then we should seriously review our course of study and inspect our school policy with the hope of ascertaining and correcting the difficulty. That this impression is quite general, one needs only to examine the speeches of our most prominent educators to determine. *The question is, does high school enrollment represent high school efficiency?*

Well-intentioned people have opposed the high school as a part of the public-school system on the ground that the public patronizes the high school to such a limited extent that the small fraction can be ignored in the general problem of public education without any material effect upon final results. These same people argue that the high school provides a liberal education for a selected few, something the public should not be required to do. They assert<sup>2</sup> that the high school is the most expensive school in the system; that higher salaries are paid the teachers; that more expensive apparatus and library facilities are required; that larger and more expensive buildings are needed; and that all of these items increase year by year; and from the statement of the educators themselves it is established that public education ends with the completion of the grammar-school course or before it. That the high school is the most expensive school in the system goes without argument; the same

<sup>1</sup> See *New England Journal of Education*, Vol. LIV, p. 316.

<sup>2</sup> Consult the discussion on "Unification" in New York State, 1898-9, *Educational Review*, Vol. XVII, pp. 409, 510; Vol. XVIII, pp. 43-79.

is true when we speak of clothing the man and the child, or when we compare their relative expense along any line, but this fact could hardly be used as an effective argument against the man.

While statute law has settled some things for the high schools of Massachusetts, there are still murmurings against them in that state as elsewhere. This is clearly indicated by the report<sup>1</sup> of Secretary Frank A. Hill, of the Massachusetts State Board of Education. In commenting upon this misuse of the ratio between high school and public school attendance, Mr. Hill takes occasion to say that the 7.6 per cent. of the entire school enrollment of the state that is found in high schools does not indicate the proportion of school children who pursue their studies beyond the elementary school; and to claim that only 7.6 per cent. enter the high school is misleading, and tends to underestimate the importance of the high school as a part of our public-school system. The state superintendent of Pennsylvania in his annual report for 1895 points out the same misuse of statistics in that state and urges that "The time has come when the teachers of our Pennsylvania high schools should correct such a serious error in the public mind."

High schools are not found in country districts or small villages; and yet the thousands of children in these localities are reckoned in as a part of the divisor in this problem, when by their geographical location they are excluded from the possibility of high-school enjoyment. Those out of the sphere of high-school influence would have to be added, as well as those within, if we are dealing with mere percentages concerning given areas. But such figures are of little value in a problem like the one before us, and are manifestly unfair. If we are to adopt the method used by these critics of the public high school, it would be a much fairer test of high-school efficiency if we should take for the divisor the total enrollment for all schools in those communities within the circle of high-school influence, and for the dividend the actual high-school enrollment in said communities. Those pupils who are taking one or more high-

<sup>1</sup> See *Fifty-Eighth Annual Report of the Massachusetts Board of Education*, p. 67.

school studies should be reckoned in the dividend as well as in the divisor; the quotient would then be the percentage of high-school enrollment to the total school enrollment for the localities taken. With this correction, without any change of method, it would be found that a far greater number of those within the sphere of high-school influence were enjoying, in whole or in part, the advantages afforded by our high schools.

The misleading statement that less than 5 per cent. of the school population ever enter the high school is obtained by dividing the number actually enrolled in secondary schools in one year by the total school enrollment. To show the absurdity of their line of reasoning, we go to the actuaries' tables<sup>1</sup> and take the number of children there shown at five years of age to be pupils in the first primary grade, and divide as before, we find that less than 9 per cent. of the pupils who ought to be in the first primary grade actually enter that grade. If we carry the same reasoning a step further, substituting in secondary schools the number of births in one year that produce the school population, as shown by the actuaries' tables, and divide this number by the school population, we show that less than 12 per cent. were ever born — *reductio ad absurdum*. The conclusion is that the method of reasoning heretofore followed, and producing these small percentages, is utterly unreliable. We must, therefore, look to some other method, if we hope to get an approximate notion of the actual efficiency of our high schools as a part of our public-school system. There can be little doubt that confusion has arisen from confounding high-school enrollment with high-school efficiency — two entirely different things.

But how may we get at this difference? Suppose we have given a course of study twelve years in length, four years in the high school, four in the grammar school, four in the primary school — one-third of the entire course in each. Given a number of pupils equal to 1,200, evenly distributed throughout the course of study, 100 in each year; then 400 would be in the high school, 400 in the grammar school, 400 in the primary school, or  $33\frac{1}{3}$  per cent. of the total enrollment in each school;

<sup>1</sup> See *Report High School Department, U. S. N. Y.*, 1898, p. 329.

*i. e.*, this  $33\frac{1}{3}$  per cent. of enrollment found in each school would be 100 per cent., of efficiency for that school, since it would be meeting the complete demand of the system upon it. Given that there are to be no additions to or subtractions from the number of pupils, excepting by graduation from the high school, then in the space of twelve years the entire 1,200 will have been graduated from the high school. It follows that the maximum possibility, 100 per cent., of high-school efficiency has been realized, while at no time has the enrollment of the high school exceeded  $33\frac{1}{3}$  per cent. of the original number.

Apply the above line of reasoning to an actual case.<sup>1</sup> The actual enrollment in the public schools in one of the cities of the state of New York for the year 1900-1 was 2,180. The course of study is twelve years in length; four of these years are in the high-school course. If  $33\frac{1}{3}$  per cent. of the enrollment had been in the high school, then 726 different pupils would have enjoyed high-school advantages during the year.

Of this number, 671, or 30.7 per cent. of the total public-school enrollment, were actually enrolled in the high school, *i. e.*,  $\frac{671}{2180}$  of the maximum possibility was realized. This fraction reduced to a decimal gives 92.1—the efficiency of the high school in that city. This same result may be obtained by dividing 30.7, the actual percentage of total enrollment, by  $33\frac{1}{3}$  per cent., the maximum possible enrollment, or by multiplying the percentage of enrollment by three.

The number enrolled for the same year in the same city in the middle four years of the twelve, or in the grammar school, was 638, or 29.27 per cent. of the total enrollment. In the first four years, or in the primary school, it was 871, or 40 per cent. of the total enrollment. If 30.7 per cent. of the total enrollment in the high school means that only 31 in each 100 ever enjoy high-school advantages, then it must follow that 29 per cent. of enrollment in the grammar school means that only 29 in each 100 ever enjoy the advantages of the grammar school, and 40 per cent of enrollment in the primary school means that only 40 in each 100 ever enjoy the privileges of the primary

<sup>1</sup> See *Popular Educator*, April, 1897, p. 355.

school. It must follow, therefore, that only 40 in each 100 of the total school registration begin their school life in the primary schools. The question that naturally arises at this point is, *where do the other 60 in each 100 begin their school life?* A second time, by the very same methods in common use, we have reached a conclusion which is absurd. Since our entire public-school population practically begin school life in the primary schools, it is evident that there is a fault in the methods heretofore used in reaching percentages, and that there is a vast difference between high-school enrollment and the number of those actually enjoying the advantages of our high schools.

From the cases taken it would seem that the relation of high-school efficiency to high-school enrollment is as 3 to 1. Upon this hypothesis have been compiled the following tables for ten cities in New York state and ten in the state of Massachusetts, showing the percentage of high-school enrollment and high-school efficiency in each, as related to the total enrollment of all the public schools in the cities taken.

If this method of reasoning is corrected by the actuaries' tables, and an allowance made for those who fail of promotion for various causes, the conclusion that the figures usually given to represent the high school are just one-third of what they should be is conservative.

One thing is certain, that the agitation of the question of high-school attendance has drawn attention so pointedly to this matter that secondary-school men have been aroused to a greater effort to secure attendance upon high schools. This is shown by the returns of the various state superintendents as well as by reports of the United States Commissioner of Education. New York state, with her 741 high schools and academies, is a brilliant example of the case in point. In 1888<sup>1</sup> there were enrolled in the secondary schools of the state of New York 31,590 pupils. Ten years later the enrollment was 66,342 pupils—an increase in ten years upon attendance of 121 per cent. The number of pupils<sup>2</sup> attending the 741 high schools and academies in New

<sup>1</sup> See *Director's Report of High Schools for New York State*, 1898, p. 326.

<sup>2</sup> See *ibid.*, 1901, p. 212.

York state for the year ending July 1, 1901, was 83,796—an increase of 26.3 per cent. since 1898, and of 165.3 per cent. since 1888. In the eighteen years that elapsed between 1870–1888, there was an increase of 141 high schools in New York state, a gain of 227 per cent. In the ten years from 1888–98, there was an increase of 311 schools, or an additional gain of 153 per cent. nearly. Within the full period of twenty-eight years, the grand increase for the state of New York was the addition of 452 high schools and academies, or 729 per cent.

COMPARATIVE TABLE SHOWING HIGH SCHOOL AND PUBLIC SCHOOL ATTENDANCE.

TEN CITIES IN NEW YORK.

	1	2	3	4	5	6	7
Name of city.	Population in 1900.	Total public school enrollment in 1900-1.	High school enrollment in 1900-1.	Per cent of high school enrollment to total enrollment.	Per cent of high school efficiency.	Number of teachers in high school, 1900-1.	Number of pupils per teacher in high school, 1900-1.
Albany.....	95,000	12,896	761	5.9	17.7	28	27.1
Binghamton.....	39,647	7,320	748	10.2	30.6	24	31.1
Buffalo.....	360,000	58,000	2,823	4.8	14.4	81	34.8
Elmira.....	35,672	5,587	685	12.2	36.6	16	42.8
Ithaca.....	13,500	2,180	671	30.7	92.1	18	37.3
Poughkeepsie.....	24,029	3,240	448	13.8	41.4	12	37.3
Rochester.....	135,500	20,356	962	4.7	14.1	39	24.6
Syracuse.....	108,374	21,090	1,613	7.6	22.8	42	38.4
Utica.....	56,383	9,037	500	5.5	16.5	16	31.2
Yonkers.....	51,000	7,653	493	6.4	19.2	16	30.8

TEN CITIES IN MASSACHUSETTS.

	1	2	3	4	5	6	7
Name of city.	Population in 1900.	Total public school enrollment in 1900-1.	High school enrollment in 1900-1.	Per cent of high school enrollment to total enrollment.	Per cent of high school efficiency.	Number of teachers in high school, 1900-1.	Number of pupils per teacher in high school, 1900-1.
Boston.....	573,686	91,796	6,519	7.1	21.3	191	34.1
Cambridge.....	91,886	16,065	1,320	8.2	24.6	60	22.0
Fall River.....	104,863	16,244	660	4.1	12.3	23	28.7
Lawrence.....	62,559	7,524	581	7.7	23.1	21	27.7
Lowell.....	94,969	12,692	871	6.8	20.4	29	30.0
Lynn.....	68,513	10,150	794	7.8	23.4	29	27.4
New Bedford.....	62,442	8,793	410	4.6	13.8	16	25.6
Somerville.....	63,000	12,345	1,065	8.6	25.8	42	25.3
Springfield.....	62,300	11,574	781	6.7	20.1	32	24.4
Worcester.....	121,064	23,725	3,039	12.8	38.4	70	43.4

NOTES: Column 4 is obtained by dividing column 3 by column 2. Column 5 is found by multiplying column 4 by 3. Column 7 is found by dividing column 3 by column 6.



The high school has come to stay as a part of our public-school system, of which it is the fitting head. Its usefulness, its importance, and its possibilities are just beginning to be realized. Each year is certain to see better buildings with better equipment devoted to this branch of free public education; each year will witness more and better trained high-school teachers at higher salaries. The educational development of the nineteenth century was abreast of the development in science or in commerce. Mr. Wells <sup>1</sup> is wrong when he says that the nineteenth century, when it shall take its place upon the chronological charts of the future, will be symbolized by a locomotive upon a railway. If the nineteenth century stands for anything that will distinguish it and place it upon the honor roll of the centuries it is its unparalleled achievements in public education. Mr. Well's picture is not complete. In front of his engine must be placed a schoolhouse, surmounted by the American flag, surrounded by a group of high school boys and girls.

The American public high school responds to the pulse of the spirit of American progress. It is a thoroughly democratic institution, and is destined to become, in an ever-increasing sense, the people's university.

F. D. BOYNTON.

SUPERINTENDENT OF SCHOOLS,  
Ithaca, N. Y.

<sup>1</sup> *North American Review*, June, 1901, p. 801.